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Department of Environmental Quality
Division of Air Quality

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Title V Operating Permit

PERMIT NUMBER: 4500030001

DATE OF PERMIT: October 11, 2001

Date of Last Revision: June 11, 2003

This Operating Permit is issued to, and applies to the following:

Name of Permittee:

US Magnesium LLC
238 N 2200 W
Salt Lake City, UT 84116

Permitted Location:

Rowley Plant
15 Miles North Exit 77, I-80
Rowley, UT

UTM coordinates: 4,530,490 meters Northing, 354,141 meters Easting
SIC code: 3339

ABSTRACT

US Magnesium LLC operates a primary magnesium production facility at its Rowley plant, located in Tooele County, Utah. US Magnesium produces magnesium metal from the waters of the Great Salt Lake. Some of the water is evaporated in a system of solar evaporation ponds and the resulting brine solution is purified and dried to a powder in spray dryers. The powder is then melted and further purified in the melt reactor before going through an electrolytic process to separate magnesium metal from chlorine. The metal is then refined and/or alloyed and cast into molds. The chlorine from the melt reactor is combusted with natural gas in the chlorine reduction burner (CRB) and converted into hydrochloric acid (HCl). The HCl is removed from the gas stream through a scrubber train. The chlorine that is generated at the electrolytic cells is collected and piped to the chlorine plant where it is liquefied for reuse or sale. US Magnesium is a major source for emissions of PM₁₀, NO_x, Volatile Organic Compounds (VOCs), and Hazardous Air Pollutants (HAPs) [chlorine and HCl].

UTAH AIR QUALITY BOARD

By:

Richard W. Sprott, Executive Secretary

Prepared By:

Tim Andrus

Operating Permit History

10/11/2001 - Permit issued	Action initiated by an initial operating permit application	
5/6/2002 -Permit modified	Action initiated by an administrative amendment (initiated by source)	to remove the requirement that the cast house furnaces and casting machine be covered with an inert gas and to change the production rate during source testing to be no less than 90% of the maximum production achieved in the previous six months.
6/11/2003 -Permit modified	Action initiated by an administrative amendment (initiated by DAQ)	to incorporate a change in casthouse furnace workpractices as authorized in DAQE-AN0716038-03. Specifically, this modification restores the requirement for casthouse furnaces #1 through #11 to be covered with molten flux, and the requirement for furnaces #12 and #13 to be covered with inert gas.

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Issued under authority of Utah Code Ann. Section 19-2-104 and 19-2-109.1, and in accordance with Utah Administrative Code R307-415 Operating Permit Requirements.

All definitions, terms and abbreviations used in this permit conform to those used in Utah Administrative Code R307-101 and R307-415 (Rules), and 40 Code of Federal Regulations (CFR), except as otherwise defined in this permit. Unless noted otherwise, references cited in the permit conditions refer to the Rules.

Where a permit condition in Section I, General Provisions, partially recites or summarizes an applicable rule, the full text of the applicable portion of the rule shall govern interpretations of the requirements of the rule. In the case of a conflict between the Rules and the permit terms and conditions of Section II, Special Provisions, the permit terms and conditions of Section II shall govern except as noted in Provision I.M, Permit Shield.

Section I: General Provisions

I.A. Federal Enforcement.

All terms and conditions in this permit, including those provisions designed to limit the potential to emit, are enforceable by the EPA and citizens under the Clean Air Act of 1990 (CAA) except those terms and conditions that are specifically designated as "State Requirements". (R307-415-6b)

I.B. Permitted Activity(ies).

Except as provided in R307-415-7b(1), the permittee may not operate except in compliance with this permit. (See also Provision I.E, Application Shield)

I.C. Duty to Comply.

I.C.1 The permittee must comply with all conditions of the operating permit. Any permit noncompliance constitutes a violation of the Air Conservation Act and is grounds for any of the following: enforcement action; permit termination; revocation and reissuance; modification; or denial of a permit renewal application. (R307-415-6a(6)(a))

I.C.2 It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (R307-415-6a(6)(b))

I.C.3 The permittee shall furnish to the Executive Secretary, within a reasonable time, any information that the Executive Secretary may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Executive Secretary copies of records required to be kept by this permit or, for information claimed to be confidential, the permittee may furnish such records directly to the EPA along with a claim of confidentiality. (R307-415-6a(6)(e))

I.C.4 This permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance shall not stay

any permit condition, except as provided under R307-415-7f(1) for minor permit modifications. (R307-415-6a(6)(c))

I.D. Permit Expiration and Renewal.

I.D.1 **This permit is issued for a fixed term of five years and expires on October 11, 2006.** (R307-415-6a(2))

I.D.2 Application for renewal of this permit is due by April 11, 2006. An application may be submitted early for any reason. (R307-415-5a(1)(c))

I.D.3 An application for renewal submitted after the due date listed in I.D.2 above shall be accepted for processing, but shall not be considered a timely application and shall not relieve the permittee of any enforcement actions resulting from submitting a late application. (R307-415-5a(5))

I.D.4 Permit expiration terminates the permittee's right to operate unless a timely and complete renewal application is submitted consistent with R307-415-7b (see also Provision I.E, Application Shield) and R307-415-5a(1)(c) (see also Provision I.D.2). (R307-415-7c(2))

I.E. Application Shield.

If the permittee submits a timely and complete application for renewal, the permittee's failure to have an operating permit will not be a violation of R307-415, until the Executive Secretary takes final action on the permit renewal application. In such case, the terms and conditions of this permit shall remain in force until permit renewal or denial. This protection shall cease to apply if, subsequent to the completeness determination required pursuant to R307-415-7a(3), and as required by R307-415-5a(2), the applicant fails to submit by the deadline specified in writing by the Executive Secretary any additional information identified as being needed to process the application. (R307-415-7b(2))

I.F. Severability.

In the event of a challenge to any portion of this permit, or if any portion of this permit is held invalid, the remaining permit conditions remain valid and in force. (R307-415-6a(5))

I.G. Permit Fee.

I.G.1 The permittee shall pay an annual emission fee to the Executive Secretary consistent with R307-415-9. (R307-415-6a(7))

I.G.2 The emission fee shall be due on October 1 of each calendar year or 45 days after the source receives notice of the amount of the fee, whichever is later. (R307-415-9(4)(a))

I.H. No Property Rights.

This permit does not convey any property rights of any sort, or any exclusive privilege. (R307-415-6a(6)(d))

I.I. Revision Exception.

No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit. (R307-415-6a(8))

I.J. Inspection and Entry.

I.J.1 Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Executive Secretary or an authorized representative to perform any of the following:

I.J.1.a Enter upon the permittee's premises where the source is located or emissions related activity is conducted, or where records are kept under the conditions of this permit. (R307-415-6c(2)(a))

I.J.1.b Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit. (R307-415-6c(2)(b))

I.J.1.c Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practice, or operation regulated or required under this permit. (R307-415-6c(2)(c))

I.J.1.d Sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with this permit or applicable requirements. (R307-415-6c(2)(d))

I.J.2 Any claims of confidentiality made on the information obtained during an inspection shall be made pursuant to Utah Code Ann. Section 19-1-306. (R307-415-6c(2)(e))

I.K. Certification.

Any application form, report, or compliance certification submitted pursuant to this permit shall contain certification as to its truth, accuracy, and completeness, by a responsible official as defined in R307-415-3. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. (R307-415-5d)

I.L. Compliance Certification.

I.L.1 Permittee shall submit to the Executive Secretary an annual compliance certification, certifying compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. This certification shall be submitted no later than **September 30, 2002** and that date each year following until this permit expires. The certification shall include all the following (permittee may cross-reference this permit or previous reports): (R307-415-6c(5))

I.L.1.a The identification of each term or condition of this permit that is the basis of the certification;

I.L.1.b The identification of the methods or other means used by the permittee for determining the compliance status with each term and condition during the certification period, and

whether such methods or other means provide continuous or intermittent data. Such methods and other means shall include, at a minimum, the monitoring and related recordkeeping and reporting requirements in this permit. If necessary, the permittee also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Act, which prohibits knowingly making a false certification or omitting material information;

- I.L.1.c The status of compliance with the terms and conditions of the permit for the period covered by the certification, based on the method or means designated in Provision I.L.1.b. The certification shall identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance any periods during which compliance is required and in which an excursion or exceedance as defined under 40 CFR Part 64 occurred; and
- I.L.1.d Such other facts as the Executive Secretary may require to determine the compliance status.
- I.L.2 The permittee shall also submit all compliance certifications to the EPA, Region VIII, at the following address or to such other address as may be required by the Executive Secretary: (R307-415-6c(5)(d))

Office of Enforcement, Compliance and Environmental Justice
(mail code 8ENF)
EPA, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2466

I.M. Permit Shield.

- I.M.1 Compliance with the provisions of this permit shall be deemed compliance with any applicable requirements as of the date of this permit, provided that:
- I.M.1.a Such applicable requirements are included and are specifically identified in this permit, or (R307-415-6f(1)(a))
- I.M.1.b Those requirements not applicable to the source are specifically identified and listed in this permit. (R307-415-6f(1)(b))
- I.M.2 Nothing in this permit shall alter or affect any of the following:
- I.M.2.a The emergency provisions of Utah Code Ann. Section 19-1-202 and Section 19-2-112, and the provisions of the CAA Section 303. (R307-415-6f(3)(a))
- I.M.2.b The liability of the owner or operator of the source for any violation of applicable requirements under Utah Code Ann. Section 19-2-107(2)(g) and Section 19-2-110 prior to or at the time of issuance of this permit. (R307-415-6f(3)(b))
- I.M.2.c The applicable requirements of the Acid Rain Program, consistent with the CAA Section 408(a). (R307-415-6f(3)(c))

I.M.2.d The ability of the Executive Secretary to obtain information from the source under Utah Code Ann. Section 19-2-120, and the ability of the EPA to obtain information from the source under the CAA Section 114. (R307-415-6f(3)(d))

I.N. Emergency Provision.

I.N.1 An “emergency” is any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. (R307-415-6g(1))

I.N.2 An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the affirmative defense is demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

I.N.2.a An emergency occurred and the permittee can identify the causes of the emergency. (R307-415-6g(3)(a))

I.N.2.b The permitted facility was at the time being properly operated. (R307-415-6g(3)(b))

I.N.2.c During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in this permit. (R307-415-6g(3)(c))

I.N.2.d The permittee submitted notice of the emergency to the Executive Secretary within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken. This notice fulfills the requirement of Provision I.S.2.c below. (R307-415-6g(3)(d))

I.N.3 In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof. (R307-415-6g(4))

I.N.4 This emergency provision is in addition to any emergency or upset provision contained in any other section of this permit. (R307-415-6g(5))

I.O. Operational Flexibility.

Operational flexibility is governed by R307-415-7d(1).

I.P. Off-permit Changes.

Off-permit changes are governed by R307-415-7d(2).

I.Q. Administrative Permit Amendments.

Administrative permit amendments are governed by R307-415-7e.

I.R. **Permit Modifications.**

Permit modifications are governed by R307-415-7f.

I.S. **Records and Reporting.**

I.S.1 Records.

I.S.1.a The records of all required monitoring data and support information shall be retained by the permittee for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, all original strip-charts or appropriate recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. (R307-415-6a(3)(b)(ii))

I.S.1.b For all monitoring requirements described in Section II, Special Provisions, the source shall record the following information, where applicable: (R307-415-6a(3)(b)(i))

I.S.1.b.1 The date, place as defined in this permit, and time of sampling or measurement.

I.S.1.b.2 The date analyses were performed.

I.S.1.b.3 The company or entity that performed the analyses.

I.S.1.b.4 The analytical techniques or methods used.

I.S.1.b.5 The results of such analyses.

I.S.1.b.6 The operating conditions as existing at the time of sampling or measurement.

I.S.1.c Additional record keeping requirements, if any, are described in Section II, Special Provisions.

I.S.2 Reports.

I.S.2.a Monitoring reports shall be submitted to the Executive Secretary every six months, or more frequently if specified in Section II. All instances of deviation from permit requirements shall be clearly identified in the reports. (R307-415-6a(3)(c)(i))

I.S.2.b All reports submitted pursuant to Provision I.S.2.a shall be certified by a responsible official in accordance with Provision I.K of this permit. (R307-415-6a(3)(c)(i))

I.S.2.c The Executive Secretary shall be notified promptly of any deviations from permit requirements including those attributable to upset conditions as defined in this permit, the probable cause of such deviations, and any corrective actions or preventative measures taken. **Prompt, as used in this condition, shall be defined as written notification within 14 days.** Deviations from permit requirements due to unavoidable breakdowns shall be reported in accordance with the provisions of R307-107. (R307-415-6a(3)(c)(ii))

I.S.3 Notification Addresses.

I.S.3.a All reports, notifications, or other submissions required by this permit to be submitted to the Executive Secretary are to be sent to the following address or to such other address as may be required by the Executive Secretary:

Utah Division of Air Quality
P.O. Box 144820
Salt Lake City, UT 84114-4820
Phone: 801-536-4000

I.S.3.b All reports, notifications or other submissions required by this permit to be submitted to the EPA should be sent to one of the following addresses or to such other address as may be required by the Executive Secretary:

For annual compliance certifications

Environmental Protection Agency, Region VIII
Office of Enforcement, Compliance and
Environmental Justice (mail code 8ENF)
999 18th Street, Suite 300
Denver, CO 80202-2466

For reports, notifications, or other correspondence
related to permit modifications, applications, etc.

Environmental Protection Agency, Region VIII
Office of Partnerships & Regulatory Assistance
Air & Radiation Program (mail code 8P-AR)
999 18th Street, Suite 300
Denver, CO 80202-2466
Phone: 303-312-6440

I.T. **Reopening for Cause.**

I.T.1 A permit shall be reopened and revised under any of the following circumstances:

I.T.1.a New applicable requirements become applicable to the permittee and there is a remaining permit term of three or more years. No such reopening is required if the effective date of the requirement is later than the date on which this permit is due to expire, unless the terms and conditions of this permit have been extended pursuant to R307-415-7c(3), application shield. (R307-415-7g(1)(a))

I.T.1.b The Executive Secretary or EPA determines that this permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit. (R307-415-7g(1)(c))

I.T.1.c EPA or the Executive Secretary determines that this permit must be revised or revoked to assure compliance with applicable requirements. (R307-415-7g(1)(d))

I.T.1.d Additional applicable requirements are to become effective before the renewal date of this permit and are in conflict with existing permit conditions. (R307-415-7g(1)(e))

I.T.2 Proceedings to reopen and issue a permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. (R307-415-7g(2))

I.U. **Inventory Requirements.**

I.U.1 An emission inventory shall be submitted in accordance with the procedures of R307-150, Emission Inventories. (R307-150)

I.U.2 A Hazardous Air Pollutant Inventory shall be submitted in accordance with the procedures of R307-155, Hazardous Air Pollutant Inventory. (R307-155)

Section II: SPECIAL PROVISIONS

II.A. Emission Unit(s) Permitted to Discharge Air Contaminants.

(R307-415-4(3)(a) and R307-415-4(4))

- II.A.1 **Solar Pond Diesel Engines** (designated as Unit #SP-01)
Unit Description: All engines located at the Solar Ponds, both Knolls and Stansbury. Includes all pump stations and generators.
- II.A.2 **Oil-to-fuel blending system** (designated as Unit #SP-02)
Unit Description: Racor 800-OF6, blends used crankcase oil for use in the diesel pump engines. This unit is located at the Knolls Solar Pond Complex. No unit-specific applicable requirements.
- II.A.3 **VOL Storage Tanks** (designated as Unit #SP-03)
Unit Description: Volatile Organic Liquid (VOL) storage tanks. Various tanks less than 10,560 gallons or installed prior to NSPS Subparts K, Ka, & Kb applicability dates. No VOL tanks subject to NSPS are currently on site. No unit-specific applicable requirements.
- II.A.4 **05/06 Magnesium Chloride Storage Bins** (designated as Unit #CS-01)
Unit Description: Stores the spray-dried powder from the spray dryers. Equipped with baghouses and a scrubber.
- II.A.5 **Chlorine Plant** (designated as Unit #CS-02)
Unit Description: Extracts liquid chlorine from the exhaust gas of the anode compartment of the electrolytic cells. The tail gas reports to the CRB (or bypass scrubber when the CRB is not operating). No unit-specific applicable requirements.
- II.A.6 **Cooling Towers 01,03, 05, Electrolytic, Casting** (designated as Unit #CS-03)
Unit Description: Cools the plants process waters. No unit-specific applicable requirements.
- II.A.7 **Fire Water Pump** (designated as Unit #CS-04)
Unit Description: Diesel powered surge pump for fire protection. No unit-specific applicable requirements.
- II.A.8 **Sand Feed Belt** (designated as Unit #CS-05)
Unit Description: Sand (limestone) feed belt to trough reactor. No unit-specific applicable requirements.
- II.A.9 **Trough Reactor** (designated as Unit #CS-06)
Unit Description: 8' x 8' x 64' trough reactor with six mixing cells. No unit-specific applicable requirements.
- II.A.10 **Welding Ventilation System** (designated as Unit #CS-07)
Unit Description: Ventilation system for maintenance welding operations. No unit-specific applicable requirements.
- II.A.11 **Chlorine Plant Bypass Scrubber** (designated as Unit #CS-08)
Unit Description: Backup emissions control for the chlorine plant, capable of controlling emissions for a minimum of eight (8) hours over any fourteen (14) day period, and having a recovery time of fourteen (14) days. To be installed and operating by January 1, 2003.
- II.A.12 **01, 02, 03 Spray Dryers** (designated as Unit #SD-01, SD-02, SD-03)
Unit Description: Three identical spray dryers that evaporate the brine to form dry magnesium powder. Each spray dryer is equipped with a packed bed scrubber and mist eliminator. The spray dryer process burners use only natural gas as a fuel.

- II.A.13 **Gas Turbine/Generators & Duct Burners** (designated as Unit #SD-04)
Unit Description: Three gas turbine/generators producing hot gases for the spray dryers and various spray dryer duct burners. The turbines are fired on natural gas or fuel oil (during natural gas curtailment and maintenance).
- II.A.14 **Chlorine Reduction Burner (CRB)** (designated as Unit #MR-01)
Unit Description: Burner that reduces chlorine gas to hydrogen chloride gas. The CRB uses only natural gas as a fuel. The CRB discharges to the absorber, to the East and West packed tower, to the high-energy scrubber, before exiting the melt reactor stack.
- II.A.15 **Packed Tower Absorber** (designated as Unit #MR-02)
Unit Description: For HCl capture from the CRB. Absorber routes to the East and West packed tower scrubbers. No unit-specific applicable requirements.
- II.A.16 **Packed Tower Scrubbers** (designated as Unit #MR-03)
Unit Description: Two packed tower scrubbers for HCl capture from the CRB, routed to the high energy scrubber. No unit-specific applicable requirements.
- II.A.17 **High Energy Venturi Scrubber** (designated as Unit #MR-04)
Unit Description: receives emissions from the CRB via packed tower scrubbers and routed to the melt reactor stack. No unit-specific applicable requirements.
- II.A.18 **M/R Stack** (designated as Unit #MR-05)
Unit Description: CRB emissions from the scrubber train discharge to the melt reactor stack.
- II.A.19 **4-E Launder** (designated as Unit #MR-06)
Unit Description: Melt reactor launder system discharging to the melt reactor stack. No unit-specific applicable requirements.
- II.A.20 **EOG Stack** (designated as Unit #MR-07)
Unit Description: Stack for discharge from the emergency off gas scrubber with mist eliminator.
- II.A.21 **Melt Purification System & Auxiliary Heater** (designated as Unit #MR-08)
Unit Description: Melt purification system and auxiliary heater rated at two million BTU/hr. Melt purification auxiliary heater is permitted to use only natural gas as a fuel.
- II.A.22 **Melt Reactor Roof Ventilation** (designated as Unit #MR-09)
Unit Description: Melt reactor section roof ventilation fans. No unit-specific applicable requirements.
- II.A.23 **Electrolytic Cells - M-Cells and Amax Cells** (designated as Unit #ES-01)
Unit Description: 120 M-Cells and Amax sealed electrolytic cells. May include some IG Farben cells, however there shall be no IG Farben cells in use after October 1, 2001.
- II.A.24 **Salt Holding Cells** (designated as Unit #ES-02)
Unit Description: Ten (10) salt holding cells. No unit-specific applicable requirements.
- II.A.25 **Auxiliary Heating System** (designated as Unit #ES-03)
Unit Description: Auxiliary heating system for the sealed cells, melt cells, and holding cells. The auxiliary heating system uses only natural gas as a fuel.
- II.A.26 **Electrolytic Section Roof Vents** (designated as Unit #ES-04)
Unit Description: Roof fans for ventilating the electrolytic section building(s). No unit-specific applicable requirements.
- II.A.27 **Casting Machines (3)** (designated as Unit #CMW-01)
Unit Description: Cast house with three casting machines designated as #01, #02, #03.
- II.A.28 **Direct Chill Casting Machine** (designated as Unit #CMW-02)
Unit Description: Direct chill casting machine designated as #04.
- II.A.29 **Casthouse Building Roof Vents** (designated as Unit #CMW-03)
Unit Description: Roof fans for ventilating the casthouse and magnesium warehouse section building(s). No unit-specific applicable requirements.

- II.A.30 **Casthouse Furnaces (11)** (designated as Unit #CMW-04)
Unit Description: Eleven casthouse furnaces designated as #1 through #11, with natural gas burners and combustion stacks.
- II.A.31 **Covered Electric Casthouse Furnaces (2)** (designated as Unit #CMW-05)
Unit Description: Two covered furnaces in the casthouse designated as #12 and #13.
- II.A.32 **Magnesium Band saw** (designated as Unit #CMW-06)
Unit Description: Magnesium band saw with a dry cyclone for dust collection. No unit-specific applicable requirements.
- II.A.33 **Bulk Solids Carbon Unloading Station** (designated as Unit #MISC-01)
Unit Description: Powder storage including baghouse, conveyor, high speed shaking screen, hammermill, and hoppers.
- II.A.34 **Magnesium Chloride Bin Baghouses** (designated as Unit #MISC-02)
Unit Description: Baghouse dust collection system for the 02 and 03 magnesium chloride (MgCl₂) storage bins. No unit-specific applicable requirements.
- II.A.35 **Research Laboratory** (designated as Unit #MISC-03)
Unit Description: Research laboratory exhaust stack. No unit-specific applicable requirements.
- II.A.36 **Sandblasting Booth** (designated as Unit #MISC-04)
Unit Description: Sandblasting booth with baghouse dust collection system.
- II.A.37 **Unconfined Abrasive Blasting** (designated as Unit #MISC-05)
Unit Description: Abrasive blasting of items too large to fit into the sandblast booth and structures.
- II.A.38 **Auto Shop Paint Booth & Paint Cleaning Booth** (designated as Unit #MISC-06)
Unit Description: Paint booth equipped with an air atomizing paint gun rated at 38 to 48 lb. per hour, and a particulate filter. Paint cleaning booth is a Safety Kleen or equivalent booth for paint gun cleaning.

II.B. **Requirements and limitations.**

The following emission limitations, standards, and operational limitations apply to the permitted facility as indicated: (R307-415-6a(1))

II.B.1 **Conditions on permitted source (Source-wide)**

II.B.1.a **Condition:**

Sulfur content of any fuel oil or diesel burned shall be no greater than 0.5 percent by weight. [Authority granted under R307-401-6(1) (BACT); condition originated in DAQE-AN0716038-03]

II.B.1.a.1 **Monitoring:**

Compliance with this limitation shall be determined either by testing each fuel delivery for the sulfur content or by inspection of the fuel sulfur-content specifications provided by the vendor in purchase records. Sulfur content in either instance shall be determined in accordance with ASTM Method D-4294-89 or D-2880-71, or approved equivalent.

II.B.1.a.2 **Recordkeeping:**

Compliance with the above limitation shall be demonstrated by maintaining fuel receipt records showing sulfur content of the delivered fuel or maintaining records of all sulfur content testing performed on the delivered fuel.

II.B.1.a.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.b

Condition:

The permittee shall comply with the applicable requirements for recycling and emission reduction for class I and class II refrigerants pursuant to 40 CFR 82, Subpart F - Recycling and Emissions Reduction. [Authority granted under 40 CFR 82.150(b); condition originated in 40 CFR 82]

II.B.1.b.1

Monitoring:

The permittee shall certify, in the annual compliance statement required in Section I of this permit, its compliance status with the requirements of 40 CFR 82, Subpart F.

II.B.1.b.2

Recordkeeping:

All records required in 40 CFR 82, Subpart F shall be maintained consistent with the requirements of Provision S.1 in Section I of this permit.

II.B.1.b.3

Reporting:

All reports required in 40 CFR 82, Subpart F shall be submitted as required. There are no additional reporting requirements except as outlined in Section I of this permit.

II.B.1.c

Condition:

The permittee shall comply with the applicable requirements for servicing of motor vehicle air conditioners pursuant to 40 CFR 82, Subpart B - Servicing of Motor Vehicle Air Conditioners. [Authority granted under 40 CFR 82.30(b); condition originated in 40 CFR 82]

II.B.1.c.1

Monitoring:

The permittee shall certify, in the annual compliance statement required in Section I of this permit, its compliance status with the requirements of 40 CFR 82, Subpart B.

II.B.1.c.2

Recordkeeping:

All records required in 40 CFR 82, Subpart B shall be maintained consistent with the requirements of Provision S.1 in Section I of this permit.

II.B.1.c.3

Reporting:

All reports required in 40 CFR 82, Subpart B shall be submitted as required. There are no additional reporting requirements except as outlined in Section I of this permit.

II.B.1.d

Condition:

At all times, including periods of startup, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate any permitted plant equipment, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring

results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [Authority granted under R307-401-5 and 40 CFR 60.11(d); condition originated in DAQE-AN0716038-03]

II.B.1.d.1

Monitoring:

Records required for this permit condition will serve as monitoring.

II.B.1.d.2

Recordkeeping:

Permittee shall document activities performed to assure proper operation and maintenance. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.1.d.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.e

Condition:

All unpaved roads and other unpaved operational areas shall be water sprayed and/or chemically treated to control fugitive dust. Treatment shall be of sufficient frequency and quantity to minimize fugitive dust as necessary, to meet any applicable opacity limitations of this permit. Treatment shall be with calcium chloride, magnesium chloride, or equivalent (equivalency shall be determined by the Executive Secretary). The permittee is not required to apply water to surfaces during freezing conditions. If chemical treatment is to be used, the plan shall be pre-approved by the Executive Secretary. [Authority granted under R307-401-6(1) [BACT] & R307-205; condition originated in DAQE-AN0716038-03]

II.B.1.e.1

Monitoring:

Records required for this permit condition will serve as monitoring.

II.B.1.e.2

Recordkeeping:

Instances of water and/or chemical application to unpaved areas shall be recorded and maintained by the permittee. The ambient temperature shall be recorded any time water should be applied but can not be due to freezing conditions.

II.B.1.e.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.f

Condition:

Sourcewide chlorine emissions shall not exceed the following limits:

- 1) 15,000 tons total from January 1, 2001 through September 30, 2001.
- 2) 8,400 tons total from October 1, 2001 through September 30, 2002.
- 3) 3,300 tons total from October 1, 2002 through September 30, 2003.
- 4) 3,300 tons per rolling 12-month period after October 1, 2003.

Emissions from scheduled maintenance shall not be included in calculating compliance with the limits listed above. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.1.f.1

Monitoring:

Chlorine emissions shall be determined by a mass balance equation which shall be approved by the Executive Secretary before being implemented. The current mass balance equation has been approved by the Executive Secretary and is attached as Appendix A to this permit.

II.B.1.f.2

Recordkeeping:

The permittee shall calculate annual total source-wide chlorine emissions by October 20th each year for each of the following periods:

1. January 1, 2001 to September 30, 2001
2. October 1, 2001 to September 30, 2002
3. October 1, 2002 to September 30, 2003

Beginning October 1, 2003 the permittee shall calculate a new 12-month total source-wide chlorine emission by the 20th day of each month, using data from the previous 12 calendar months.

The permittee shall keep records for all periods when the plant is in operation and the records shall be made available to the Executive Secretary or Executive Secretary's representative upon request.

II.B.1.f.3

Reporting:

By October 20th of the years 2001, 2002, and 2003, the permittee shall submit an annual source-wide chlorine emissions report. Beginning October 1, 2003 the permittee shall submit to the Executive Secretary, a monthly rolling 12-month total source-wide chlorine emissions report, by the 20th day of each month, using data from the previous 12 calendar months. The parameters used to calculate the chlorine emissions shall be submitted with the chlorine emission totals.

II.B.1.g

Condition:

Chlorine emissions from scheduled maintenance shall not exceed 7,500 tons per rolling 60-month period. Scheduled maintenance shall be defined as maintenance periods where the Executive Secretary has been notified of the planned maintenance at least 30 days in advance of the start of the maintenance. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.1.g.1

Monitoring:

Chlorine emissions shall be determined by a mass balance equation which shall be approved by the Executive Secretary before being implemented. The current mass balance equation has been approved by the Executive Secretary and is attached as Appendix A to this permit.

II.B.1.g.2

Recordkeeping:

Records shall be kept for all periods of scheduled maintenance. The permittee shall calculate a new 60-month total by the 20th day of each month using data from the previous 60 calendar months. However, for the first 60 months, the beginning of the period shall be January 2001, and the 60-month rolling total will not begin until January 2006.

The permittee shall make records available to the Executive Secretary or Executive Secretary's representative upon request.

II.B.1.g.3

Reporting:

The permittee shall submit a monthly chlorine emissions report by the 20th day of each month to the Executive Secretary. The report shall include the rolling 60-month scheduled maintenance chlorine emissions. The parameters used to calculate the chlorine maintenance emissions shall be submitted with the chlorine emission totals.

II.B.1.h

Condition:

Visible emissions shall be no greater than 20 percent opacity unless otherwise specified in this permit. [Authority granted under R307-201 & R307-205; condition originated in DAQE-AN0716038-03]

II.B.1.h.1

Monitoring:

A visual opacity survey of each affected emission unit shall be performed on a monthly basis, unless otherwise specified in this permit, by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. If visible emissions other than condensed water vapor are observed from an emission unit, an opacity determination of that emission unit shall be performed by a certified observer within 24 hours of the initial survey. The opacity determination shall be performed in accordance with 40 CFR 60, Appendix A, Method 9 for point sources, and in accordance 58 FR 61640 Method 203A for fugitive sources.

II.B.1.h.2

Recordkeeping:

A log of the visual opacity survey(s) shall be maintained in accordance with Provision I.S.1 of this permit. If an opacity determination is indicated, a notation of the determination will be made in the log. All data required by 40 CFR 60, Appendix A, Method 9 or 58 FR 61640 Method 203A shall also be maintained in accordance with Provision I.S.1 of this permit.

II.B.1.h.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.i

Condition:

Visible emissions shall be no greater than 40 percent opacity for the combined plumes of the spray dryers, M/R stack, and E.O.G. stack. [Authority granted under R307-201 & R307-205; condition originated in DAQE-AN0716038-03]

II.B.1.i.1

Monitoring:

A visual opacity survey of each affected emission unit shall be performed on a monthly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. If visible emissions other than steam are observed from an emission unit, an opacity determination of that emission unit shall be performed by a certified observer within 24 hours of the initial survey. The opacity determination shall be performed in accordance with 40 CFR 60, Appendix A, Method 9.

II.B.1.i.2

Recordkeeping:

A log of the visual opacity survey(s) shall be maintained in accordance with Provision I.S.1 of this permit. If an opacity determination is indicated, a notation of the determination will be made in the log. All data required by 40 CFR 60,

Appendix A, Method 9 shall apply and be maintained in accordance with Provision I.S.1 of this permit.

II.B.1.i.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.2

Conditions on Solar Pond Diesel Engines (Unit #SP-01)

II.B.2.a

Condition:

The permittee shall use only #2 or better diesel fuel, fuel oil, or crankcase oil recycled on site, as a fuel in any diesel generator or pump engines. The percent of the crankcase oil in the fuel shall not exceed 5% by weight. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.2.a.1

Monitoring:

Records of fuel type used and blended shall be monitored once a month. Prior to the 20th day of each month, the permittee shall verify the types of fuel blended and verify that the quantity of recycled crankcase oil used during the previous month did not exceed 5% by weight.

II.B.2.a.2

Recordkeeping:

The permittee shall maintain a log of the types of fuel burned and the quantity of used crankcase oil blended into the fuel, for all fuel used in the diesel generators and pump engines.

II.B.2.a.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.2.b

Condition:

Total number of horsepower-hours (Hp-hr) shall be no greater than 26.59 MMHp-hr per rolling 12-month period. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.2.b.1

Monitoring:

Horsepower-hour production shall be determined by monitoring the hours of operation of each engine during the month and multiplying the number of hours of operation by the nameplate horsepower. By the 20th day of each month a new 12-month total shall be calculated by the permittee using data from the previous 12 calendar months. All engines shall be equipped with time devices which record the number of hours each engine has operated.

II.B.2.b.2

Recordkeeping:

Results of monitoring shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.2.b.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.2.c

Condition:

Visible emissions shall be no greater than 20 percent opacity. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.2.c.1

Monitoring:

A visual observation of each affected emission unit shall be performed once each six month period (January through June, and July through December) that the unit operates, by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer (VEO). If any visible emissions are observed, an opacity determination of that emission unit shall be performed by a certified VEO in accordance with 40 CFR 60, Appendix A, Method 9 within 24 hours of the initial observation. If the unit only operates during the last month of any six-month period, the opacity observation requirement may be performed during the next consecutive calendar month to comply with the time frame of this limitation

II.B.2.c.2

Recordkeeping:

Results from opacity observations and all data required by 40 CFR 60, Appendix A, Method 9 shall be recorded and maintained in accordance with Provision I.S.1 of this permit.

II.B.2.c.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.3

Conditions on 05/06 Magnesium Chloride Storage Bins (Unit #CS-01)

II.B.3.a

Condition:

Discharge gas temperature shall be no greater than 150 degrees F. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.3.a.1

Monitoring:

The discharge gas temperature shall be monitored once per day with either a thermocouple or a thermometer, located in such a way that it may be safely read at any time. The instrument shall be calibrated once every 90 days in accordance with the manufacturers recommendations.

II.B.3.a.2

Recordkeeping:

Results of monitoring shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.3.a.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.3.b

Condition:

Emissions of Hydrochloric acid (Hydrogen chloride) shall be no greater than 47.5 lb/hr and no greater than 0.35 grain/dscf. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.3.b.1

Monitoring:

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested annually based on the date of the most recent stack test. The initial test for this permit will be required to be completed within 12 months from the date of this permit. The source may also be tested at any time if directed by the Executive Secretary.

(b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 26A shall be used to determine the pollution emission rate.

(3) 40 CFR 60, Appendix A, Method 2 shall be used to determine the volumetric flow rate.

(d) Calculations. To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous six months.

II.B.3.b.2

Recordkeeping:

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.3.b.3

Reporting:

The results of stack testing shall be submitted to the Executive Secretary within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.3.c

Condition:

Emissions of PM₁₀ shall be no greater than 2.71 lb/hr and no greater than 0.016 grain/dscf. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.3.c.1

Monitoring:

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years based on the date of the most recent stack test. The permittee must test within 12-months of the date of this permit if the most recent stack test is dated back more than 24-months prior to the date of this permit. The source may also be tested at any time if directed by the Executive Secretary.

(b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(2) For stacks in which no liquid drops are present, the following methods shall be used: 40 CFR 51, Appendix M, Methods 201 or 201a. Method 202 may be used to measure condensible particulate matter.

(3) For stacks in which liquid drops are present, methods to eliminate the liquid drops should be explored. If no reasonable method to eliminate the drops exists, then the following methods shall be used: 40 CFR 60, Appendix A, Method 5, 5a, 5d, or 5e as appropriate. The back half condensibles shall also be tested using a method specified by the Executive Secretary. All particulate captured shall be considered PM₁₀.

(4) The back half condensibles shall not be used for compliance demonstration but shall be used for inventory purposes.

(d) Sampling Specifications - The sample volume shall be no less than 30 dscf (68 deg. F, 29.92 in Hg) per run. The sample time shall be no less than 60 minutes per run.

(e) Calculations. To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation.

(f) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous six months.

II.B.3.c.2

Recordkeeping:

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.3.c.3

Reporting:

The results of stack testing shall be submitted to the Executive Secretary within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.3.d

Condition:

Liquid recirculation rate shall be no less than 140 gpm. Recirculation liquor is the liquid to the packing plus the liquid to the duct sprays. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.3.d.1

Monitoring:

A flow meter measuring the recirculation liquor shall be monitored daily. The flow meter shall be calibrated every 90 days in accordance with the manufacturers recommendations.

II.B.3.d.2

Recordkeeping:

The records required for monitoring shall be maintained as described by Provision S.1 in Section I of this permit.

II.B.3.d.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.3.e

Condition:

Recirculated scrubber liquor shall be no greater than 5 % HCl concentration based on a 24-hour rolling average. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.3.e.1

Monitoring:

The HCl concentration shall be determined by sampling the scrubber liquor once every four hours and titrated in the lab with NaOH. Following each sample the permittee shall determine a new 24-hour rolling average to compare to the limit. The rate of blowdown shall be adjusted to maintain the liquor at the prescribed concentration.

II.B.3.e.2

Recordkeeping:

The permittee shall record the lab HCl results for each sample and the 24-hour rolling average calculations. The records required for monitoring shall be maintained as described by Provision S.1 in Section I of this permit.

II.B.3.e.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.4

Conditions on Chlorine Plant Bypass Scrubber (Unit #CS-08)

II.B.4.a

Condition:

The chlorine plant bypass scrubber (CPBS) shall control the chlorine emissions from the chlorine plant for a minimum of eight (8) hours per any 14-day period, whenever the chlorine plant is not operating. The recovery time for the CPBS to become fully operational after it has been used to control chlorine emissions from the chlorine plant shall not exceed fourteen (14) days. The CPBS shall be installed and operational by January 1, 2003. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.4.a.1

Monitoring:

The permittee shall monitor the operation of the chlorine plant bypass scrubber each time it is operated to show the number of hours the CPBS operated during all times of chlorine plant shut down. Additionally, the permittee shall monitor the recovery time of the CPBS.

II.B.4.a.2

Recordkeeping:

The permittee shall record the number of hours the chlorine plant bypass scrubber operated during all times of chlorine plant shut down. Additionally, the permittee shall record the recovery of the CPBS system after each use, by noting the date and time the CPBS is fully ready (8 hour capacity) after it has been used. Results of monitoring shall be maintained as described in Provision I.S.1 of this permit.

II.B.4.a.3

Reporting:

The permittee shall submit a report to the Executive Secretary stating when the chlorine plant bypass scrubber is installed and operational. No additional reporting is required.

II.B.5

Conditions on 01, 02, 03 Spray Dryers (Unit #SD-01, SD-02, SD-03)

II.B.5.a

Condition:

Emissions of Hydrochloric acid (Hydrogen chloride) shall be no greater than 200 lb/hr for each spray dryer. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.5.a.1

Monitoring:

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested annually based on the date of the most recent stack test. The initial test for this permit will be required to be completed within 12 months from the date of this permit. The source may also be tested at any time if directed by the Executive Secretary.

(b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of

the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 26A shall be used to determine the pollution emission rate.

(3) 40 CFR 60, Appendix A, Method 2 shall be used to determine the volumetric flow rate.

(d) Calculations. To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous six months.

II.B.5.a.2

Recordkeeping:

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.5.a.3

Reporting:

The results of stack testing shall be submitted to the Executive Secretary within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.5.b

Condition:

Emissions of TSP shall be no greater than 100 lb/hr for each spray dryer. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.5.b.1

Monitoring:

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested annually based on the date of the most recent stack test. The initial test for this permit will be required to be completed within 12 months from the date of this permit. The source may also be tested at any time if directed by the Executive Secretary.

(b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of

the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(2) Sample Method - 40 CFR 60. Appendix A, Method 5 shall be used to determine the particulate matter concentration.

(d) Sampling Specifications - The filtration temperature shall be 248 +/-25 deg. F. The sample volume shall be no less than 30 dscf (68 deg. F, 29.92 in Hg) per run. The sample time shall be no less than 60 minutes per run.

(e) Calculations. To determine mass emission rates (lb./hr., etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation.

(f) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous six months.

II.B.5.b.2

Recordkeeping:

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.5.b.3

Reporting:

The results of stack testing shall be submitted to the Executive Secretary within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.5.c

Condition:

The scrubber shall meet the following specifications for each spray dryer scrubber:

Packing height/Volume	7 ft/3,800 cu ft
Gas velocity in vessel	6.5 ft/sec minimum
Scrubber liquor recirculation rate	2,000 gpm minimum
Mist eliminator	above packing.

[Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.5.c.1

Monitoring:

The permittee shall make at least one gas velocity and one liquid recirculation rate observation per day. The observation shall be made during typical operating

conditions. The instrument(s) shall be calibrated every 90 days in accordance with manufacturer's instructions. Additionally, the gas velocity and liquid recirculation rate shall be observed and recorded at the time of any compliance stack testing. If the gas velocity or liquid recirculation rate drops below the limit, the permittee shall immediately investigate the cause and initiate corrective action to return the scrubber to proper operating parameters. If the gas velocity or liquid recirculation rate remains below the limit for greater than 48 hours from the initial deviation reading it shall be considered a deviation from this permit term.

The permittee shall make at least one observation per each 6-month calendar period, of the packing height or volume, and mist eliminator(s). If the packing height drops below the limit or the mist eliminator(s) are not in proper position above the packing, the permittee shall immediately investigate the cause and initiate corrective action to return the scrubber to proper operating parameter. If the scrubber is returned to operating status without the corrective action being completed it shall be considered a deviation from this permit term.

The permittee shall ensure that the packing volume is a minimum of 3,800 cubic feet at all times. The permittee shall make a log of the packing volume any time packing is added or changed.

II.B.5.c.2

Recordkeeping:

The permittee shall record the gas velocity and flow recirculation rate at least once per day that the unit operates. The permittee shall record the packing height and condition/position of the mist eliminator at least once per each 6-month calendar period that the unit operates. The permittee shall record the packing volume at any time packing is added or changed. All records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.5.c.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.5.d

Condition:

The permittee shall use only natural gas for fuel. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.5.d.1

Monitoring:

Records required for this permit condition will serve as monitoring.

II.B.5.d.2

Recordkeeping:

Records shall be kept for all periods when natural gas is not being used as fuel. These records shall be recorded in a log that is kept in a readily accessible location onsite.

II.B.5.d.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.6 **Conditions on Gas Turbine/Generators & Duct Burners (Unit #SD-04)**

II.B.6.a **Condition:**

The permittee shall use only natural gas as a primary fuel and #2 fuel oil as back-up fuel. The #2 fuel oil shall only be used during periods of natural gas curtailment and during testing and maintenance periods. Natural gas curtailment is defined as any period when the natural gas provider/supplier imposes an interruption of service, and the curtailment is involuntary and beyond the control of the permittee. [Authority granted under R307-401-6(1)[BACT]; condition originated in DAQE-AN0716038-03]

II.B.6.a.1 **Monitoring:**

The permittee shall monitor the backup fuel usage on a monthly basis. The permittee may use meter reading, inventory records, purchase records or other appropriate records that show when backup fuel was utilized and the reason for using backup fuel (natural gas curtailment, maintenance, etc.).

II.B.6.a.2 **Recordkeeping:**

The permittee shall maintain records that document the reason for backup fuel usage (i.e. natural gas curtailment, maintenance, etc.), date, and duration. All readings required to be taken shall be documented and maintained consistent with the requirements of Provision S.1 in Section I of this permit.

II.B.6.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.7 **Conditions on Chlorine Reduction Burner (CRB) (Unit #MR-01)**

II.B.7.a **Condition:**

The CRB combustion temperature shall be no less than 1650 degrees F or greater than 2,000 degrees F for more than 5 minutes in any 60 minute period when the CRB is operating. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.7.a.1 **Monitoring:**

The combustion chamber temperature shall be monitored continuously. The monitoring equipment shall be located such that an inspector can at any time safely read the output. The readings shall be accurate to within plus or minus 20 degrees F. All instruments shall be calibrated against a certified primary standard at least once every 90 days. The permittee shall maintain a working alarm system that notifies the operator when the CRB combustion temperature is outside the limited range.

II.B.7.a.2 **Recordkeeping:**

Continuous recording of the monitoring device is required. The permittee shall record all instances of alarm on the CRB combustion temperature where the alarm indicates that the temperature is outside the limited range. The permittee shall record the date, time, temperature, and duration of each alarm incidence. All records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.7.a.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.7.b

Condition:

The permittee shall use only natural gas for fuel. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.7.b.1

Monitoring:

Records required for this permit condition will serve as monitoring.

II.B.7.b.2

Recordkeeping:

Records shall be kept for all periods when natural gas is not being used as fuel. These records shall be recorded in a log that is kept in a readily accessible location onsite.

II.B.7.b.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.8

Conditions on M/R Stack (Unit #MR-05)

II.B.8.a

Condition:

The melt purification process shall not be preheated more than 900 hours per rolling 12-month period. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.8.a.1

Monitoring:

No later than the 20th day of each month, the permittee shall calculate a 12-month rolling total of the preheater operating hours, using data from the previous 12 months.

II.B.8.a.2

Recordkeeping:

Records of hours of preheater operation shall be kept on a daily basis each time the preheater operates. Results of monitoring shall be maintained as described in Provision I.S.1 of this permit.

II.B.8.a.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.8.b

Condition:

Emissions of Chlorine shall be no greater than 100 lb/hr. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.8.b.1

Monitoring:

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested annually based on the date of the most recent stack test. The initial test for this permit will be required to be completed

within 12 months from the date of this permit. The source may also be tested at any time if directed by the Executive Secretary.

(b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 26A shall be used to determine the pollution emission rate.

(3) 40 CFR 60, Appendix A, Method 2 shall be used to determine the volumetric flow rate.

(d) Calculations. To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous six months.

II.B.8.b.2

Recordkeeping:

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.8.b.3

Reporting:

The results of stack testing shall be submitted to the Executive Secretary within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.8.c

Condition:

Emissions of Hydrochloric acid (Hydrogen chloride) shall be no greater than 7.2 lb/hr. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.8.c.1

Monitoring:

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years based on the date of the most recent stack test. The permittee must test within 12-months of the date of this permit if the most recent stack test is dated back more than 24-months prior to the date of this permit. The source may also be tested at any time if directed by the Executive Secretary.

(b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 26A shall be used to determine the pollution emission rate.

(3) 40 CFR 60, Appendix A, Method 2 shall be used to determine the volumetric flow rate.

(d) Calculations. To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous six months.

II.B.8.c.2

Recordkeeping:

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.8.c.3

Reporting:

The results of stack testing shall be submitted to the Executive Secretary within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.8.d

Condition:

Emissions of PM₁₀ shall be no greater than 13.1 lb/hr. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.8.d.1

Monitoring:

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years based on the date of the most recent stack test. The permittee must test within 12-months of the date of this permit if the most recent stack test is dated back more than 24-months prior to the date of this permit. The source may also be tested at any time if directed by the Executive Secretary.

(b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(2) For stacks in which no liquid drops are present, the following methods shall be used: 40 CFR 51, Appendix M, Methods 201 or 201a. Method 202 may be used to measure condensible particulate matter.

(3) For stacks in which liquid drops are present, methods to eliminate the liquid drops should be explored. If no reasonable method to eliminate the drops exists, then the following methods shall be used: 40 CFR 60, Appendix A, Method 5, 5a, 5d, or 5e as appropriate. The back half condensibles shall also be tested using a method specified by the Executive Secretary. All particulate captured shall be considered PM_{10} .

(4) The back half condensibles shall not be used for compliance demonstration but shall be used for inventory purposes.

(d) Sampling Specifications - The sample volume shall be no less than 30 dscf (68 deg. F, 29.92 in Hg) per run. The sample time shall be no less than 60 minutes per run.

(e) Calculations. To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation.

(f) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous six months.

II.B.8.d.2

Recordkeeping:

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.8.d.3

Reporting:

The results of stack testing shall be submitted to the Executive Secretary within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.9

Conditions on EOG Stack (Unit #MR-07)

II.B.9.a

Condition:

The minimum liquid flow rate to the EOG scrubber shall be no less than 85 gallons/minute. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.9.a.1

Monitoring:

The permittee shall maintain and operate a monitoring device for the continuous measurement of the scrubbing liquid flow rate to the scrubber. The monitoring device must be accurate to within plus or minus 5% of the design scrubber liquid flow rate and must be calibrated on an annual basis in accordance with the manufacturers recommendations.

II.B.9.a.2

Recordkeeping:

Continuous recording of the monitoring device is not required. A record of the flow shall be made on a daily basis and shall be maintained as described in Provision I.S.1 of this permit.

II.B.9.a.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.9.b

Condition:

Emissions of Chlorine shall be no greater than 26 lb/hr. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.9.b.1

Monitoring:

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every two years based on the date of the most recent stack test. The permittee must test within 12-months of the date of this permit if the most recent stack test is dated back more than 12-months prior to the date of this permit. The source may also be tested at any time if directed by the Executive Secretary.

(b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 26A shall be used to determine the pollution emission rate.

(3) 40 CFR 60, Appendix A, Method 2 shall be used to determine the volumetric flow rate.

(d) Calculations. To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous three six months.

II.B.9.b.2

Recordkeeping:

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.9.b.3

Reporting:

The results of stack testing shall be submitted to the Executive Secretary within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.9.c

Condition:

Emissions of Hydrochloric acid (Hydrogen chloride) shall be no greater than 46 lb/hr. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.9.c.1

Monitoring:

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every two years based on the date of the most recent stack test. The permittee must test within 12-months of the date of this permit if the most recent stack test is dated back more than 12-months prior to the date of this permit. The source may also be tested at any time if directed by the Executive Secretary.

(b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 26A shall be used to determine the pollution emission rate.

(3) 40 CFR 60, Appendix A, Method 2 shall be used to determine the volumetric flow rate.

(d) Calculations. To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous six months.

II.B.9.c.2

Recordkeeping:

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.9.c.3

Reporting:

The results of stack testing shall be submitted to the Executive Secretary within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.9.d

Condition:

Emissions of TSP shall be no greater than 37.5 lb/hr. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.9.d.1

Monitoring:

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every two years based on the date of the most recent stack test. The permittee must test within 12-months of the date of this permit if the most recent stack test is dated back more than 12-months prior to the date of this permit. The source may also be tested at any time if directed by the Executive Secretary.

(b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(2) Sample Method - 40 CFR 60, Appendix A, Method 5 shall be used to determine the particulate matter concentration.

(d) Sampling Specifications - The sample volume shall be no less than 60 dscf (68 deg. F, 29.92 in Hg) per run. The sample time shall be no less than 60 minutes per run.

(e) Calculations. To determine mass emission rates (lb./hr., etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation.

(f) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous six months.

II.B.9.d.2

Recordkeeping:

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.9.d.3

Reporting:

The results of stack testing shall be submitted to the Executive Secretary within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.10

Conditions on Electrolytic Cells - M-Cells and Amax Cells (Unit #ES-01)

II.B.10.a

Condition:

The permittee shall have no more than 120 electrolytic cells in use, consisting of M cells and Amax sealed cells and no more than 30 of the 120 shall be Amax sealed cells. There shall be no IG Farben cells in use after October 1, 2001. [Authority granted under R307-401-6(1) (BACT); condition originated in DAQE-AN0716038-03]

II.B.10.a.1

Monitoring:

There are no monitoring requirements for this provision except those specified in Section I of this permit.

II.B.10.a.2

Recordkeeping:

Results of monitoring shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.10.a.3

Reporting:

The permittee shall submit a report to the Executive Secretary prior to December 1, 2001 stating that there were no IG Farben cells in use after October 1, 2001. The permittee shall also report the number of M cells and Amax sealed cells in use at the time of the report. Additionally, the permittee shall submit a report to the Executive Secretary within 60 days of completion of the M cells, stating the number of M cells and Amax sealed cells in use.

II.B.11

Conditions on Auxiliary Heating System (Unit #ES-03)

II.B.11.a

Condition:

The permittee shall use only natural gas for fuel. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.11.a.1

Monitoring:

Records required for this permit condition will serve as monitoring.

II.B.11.a.2

Recordkeeping:

Records shall be kept for all periods when natural gas is not being used as fuel. These records shall be recorded in a log that is kept in a readily accessible location onsite.

II.B.11.a.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.12

Conditions on Casthouse Furnaces (11) (Unit #CMW-04)

II.B.12.a

Condition:

Casthouse furnaces #1 through #11 shall have the molten magnesium surfaces covered with a molten flux when operating. Furnace covers and inert gas can be used as an alternative to the use of molten flux. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.12.a.1

Monitoring:

Visual inspections shall be made daily by a shift supervisor to determine compliance with this condition.

II.B.12.a.2

Recordkeeping:

A log of the visual inspections shall be maintained in accordance with Provision I.S.1 of this permit, including the date and time of each inspection and the name of the person making the inspection.

II.B.12.a.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.13 **Conditions on Covered Electric Casthouse Furnaces (2) (Unit #CMW-05)**

II.B.13.a **Condition:**

Casthouse furnaces #12 and #13 shall have the molten surfaces covered and purged with sulfur hexafluoride/carbon dioxide or other inert gas when operating. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.13.a.1 **Monitoring:**

Visual inspections shall be made daily by a shift supervisor to determine compliance with this condition.

II.B.13.a.2 **Recordkeeping:**

A log of the visual inspections shall be maintained in accordance with Provision I.S.1 of this permit, including the date and time of each inspection and the name of the person making the inspection.

II.B.13.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.14 **Conditions on Bulk Solids Carbon Unloading Station (Unit #MISC-01)**

II.B.14.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.14.a.1 **Monitoring:**

A visual opacity survey of each affected emission unit shall be performed on a quarterly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. If visible emissions other than condensed water vapor are observed from an emission unit, an opacity determination of that emission unit shall be performed by a certified observer within 24 hours of the initial survey. The opacity determination shall be performed in accordance with 40 CFR 60, Appendix A, Method 9 for point sources, and in accordance 58 FR 61640 Method 203A for fugitive sources.

II.B.14.a.2 **Recordkeeping:**

A log of the visual opacity survey(s) shall be maintained in accordance with Provision I.S.1 of this permit. If an opacity determination is indicated, a notation of the determination will be made in the log. All data required by 40 CFR 60, Appendix A, Method 9 or 58 FR 61640 Method 203A shall also be maintained in accordance with Provision I.S.1 of this permit.

II.B.14.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.14.b **Condition:**

The identified emission units shall be enclosed. [Authority granted under R307-401-6(1) (BACT); condition originated in DAQE-AN0716038-03]

II.B.14.b.1

Monitoring:

Visual observations shall be made once per year to determine compliance with this condition.

II.B.14.b.2

Recordkeeping:

Results of monitoring shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.14.b.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.15

Conditions on Sandblasting Booth (Unit #MISC-04)

II.B.15.a

Condition:

All sandblasting and shotblasting of pieces small enough to fit in the sandblast booth shall be performed inside the sandblast booth with all doors or other openings in the room sealed such that air in the room can only exit through the fabric filter. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.15.a.1

Monitoring:

The permittee shall visually inspect the sandblast booth once each calendar quarter. The inspection shall include the seals of any door or opening in the room and that the fabric filter is properly in place and sufficiently clean.

II.B.15.a.2

Recordkeeping:

A log of the visual inspections shall be maintained in accordance with Provision I.S.1 of this permit, including the date and time of each inspection and the name of the person making the inspection.

II.B.15.a.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.15.b

Condition:

Visible emissions shall be no greater than 40 percent opacity. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.15.b.1

Monitoring:

Visible emission evaluation of abrasive blasting operations shall be conducted at least semi-annually in accordance with the following provisions:

- (a) EPA proposed method 203B shall be used for all observations;
- (b) Evaluations shall be conducted by a person certified in accordance with 40 CFR 60, Appendix A, Method 9;
- (c) Observations shall be conducted for a period of no less than three minutes but no more than one hour, in accordance with the applicable time period for this provision;

(d) Emissions from unconfined blasting shall be read at the densest point of the emission after a major portion of the spent abrasive has fallen out, at a point not less than five feet nor more than twenty-five feet from the impact surface from any single abrasive blasting nozzle;

(e) Emissions from unconfined blasting employing multiple nozzles shall be judged as a single source unless it can be demonstrated by the owner or operator that each nozzle, evaluated separately, meets the emission and performance standards of this provision;

(f) Emissions from confined blasting shall be read at the densest point after the air contaminant leaves the enclosure.

II.B.15.b.2

Recordkeeping:

Records of visible emissions evaluations and documentation that demonstrates adherence to the performance standards in R307-206-4 shall be maintained.

II.B.15.b.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.16

Conditions on Unconfined Abrasive Blasting (Unit #MISC-05)

II.B.16.a

Condition:

Visible emissions shall be no greater than 40 percent opacity. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.16.a.1

Monitoring:

Visible emission evaluation shall be conducted every six months if abrasive blasting operations are conducted. Visible emission evaluation of abrasive blasting operations shall be conducted in accordance with the following provisions:

a. Emissions from unconfined blasting shall be read at the densest point of the emission after a major portion of the spent abrasive has fallen out, at a point not less than five feet nor more than twenty-five feet from the impact surface from any single abrasive blasting nozzle.

b. Emissions from unconfined blasting employing multiple nozzles shall be judged as a single source unless it can be demonstrated by the owner or operator that each nozzle, evaluated separately, meets the emission and performance standards provided for in R307-206.

c. Emissions from confined blasting shall be read at the densest point after the air contaminant leaves the enclosure.

II.B.16.a.2

Recordkeeping:

Records of visible emissions evaluations and documentation that demonstrates adherence to the performance standards in R307-206-4 shall be maintained.

II.B.16.a.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.17

Conditions on Auto Shop Paint Booth & Paint Cleaning Booth (Unit #MISC -06)

II.B.17.a

Condition:

Consumption of paint and thinner shall be no greater than 300 gallons per rolling 12-month period for paint, and 200 gallons per rolling 12-month period for paint thinner. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.17.a.1

Monitoring:

Compliance with the limitation shall be determined on a rolling 12-month total. The permittee shall calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. Records shall be kept on a daily basis when in operation.

II.B.17.a.2

Recordkeeping:

Daily consumption or usage records shall be maintained for all periods of operation as described by Provision S.1. of Section I of this permit. These records can utilize purchase records and/or operation logs as a basis for consumption determinations.

II.B.17.a.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.17.b

Condition:

All air exiting the paint booths shall pass through paint arrestor particulate filters before being vented to the atmosphere. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.17.b.1

Monitoring:

Visual inspections of paint booth filter type, installation, and condition shall be made on a monthly basis. Filters that are the wrong type, improper installation, or poor condition shall be immediately repaired or replaced.

II.B.17.b.2

Recordkeeping:

A log shall be kept on the results of visual inspections of the paint booth filters. Filters that are damaged, clogged, improperly installed, incorrect filters installed or any other circumstance that limits filter effectiveness shall be documented.

II.B.17.b.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.17.c

Condition:

Visible emissions shall be no greater than 10 percent opacity. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.17.c.1

Monitoring:

Opacity observations of emissions shall be conducted annually in accordance with 40 CFR Part 60, Appendix A, Method 9.

II.B.17.c.2

Recordkeeping:

Results from opacity observations and all data required by 40 CFR 60, Appendix A, Method 9 shall be recorded and maintained in accordance with Provision I.S.1 of this permit.

II.B.17.c.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.17.d

Condition:

Emissions of VOC shall be no greater than 0.81 tons per rolling 12-month period, and emissions of all HAP's combined shall be no greater than 0.61 tons per rolling 12-month period. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-AN0716038-03]

II.B.17.d.1

Monitoring:

Compliance with the limitation shall be determined on a rolling 12-month total. The permittee shall calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. Records shall be kept on a daily basis when in operation.

II.B.17.d.2

Recordkeeping:

VOC and HAP emissions shall be determined by maintaining a record of VOC potential and HAP potential contained in the materials used each month. The records shall be kept for all periods when the auto shop paint booth is in operation and include the following data for each material used:

1. Name of the VOC or HAP emitting material, such as; paint, adhesive, solvent, thinner, reducers, chemical compounds, toxics, isocyanates, etc.
2. The weight of the VOC potential and HAP's potential of each material used (pounds per gallon).
3. Percent by weight of all VOC potential and HAP's potential for each individual material used. The percent by weight of the volatile and hazardous air pollutant potentials can be obtained from the manufacturers MSDS. The permittee can obtain MSDS data from the manufacturers of the materials and retain the information on-site.
4. Amount and location of materials containing VOC's and HAP's used on a monthly basis and summed for the auto shop paint booth each year.
5. The amount of VOC and individual HAP emitted monthly by each material used, calculated by the following procedure:

VOC = (% VOC by Weight/100) x (Density lb/gal) x (Gal Consumed) x (1 ton/2000 lb)

HAP = (% HAP by Weight/100) x (Density lb/gal) x (Gal Consumed) x (1 ton/2000 lb)

6. The total amount of VOC and HAP emitted monthly from all materials used.

7. The amount of VOC and HAP reclaimed for the month shall be similarly quantified and subtracted from the quantities calculated above, to provide the monthly total VOC and HAP emissions.

II.B.17.d.3

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.C. **Emissions Trading.**

(R307-415-6a(10))

Not applicable to this source.

II.D. **Alternative Operating Scenarios.**

(R307-415-6a(9))

Not applicable to this source.

Section III: PERMIT SHIELD

A permit shield was not granted for any specific requirements.

Section IV: ACID RAIN PROVISIONS.

This source is not subject to Title IV. This section is not applicable.

REVIEWER COMMENTS

This operating permit incorporates all applicable requirements contained in the following documents:

DAQE-AN0716038-03

dated May 05, 2003

1. Comment on an item originating in DAQE-AN0716038-03 regarding 05/06 Magnesium Chloride Storage Bins (Unit CS-01)

Specifications not carried forward to this permit: DAQE-461-01 and subsequent revision: Condition 27 B. states the liquid to gas ratio shall be no less than 7.37 gpm/1000 acfm for the 05/06 acid scrubber. Based on the specifications of the scrubber the recirculation rate calculates out to be 140 gpm. The 140 gpm rate has been included as a condition to this permit (II.B.3.d.), and the 7.37 gpm/1000 acfm specification has not been included in this permit. [Comment last updated on 5/09/2003]

Appendix A

Mass Balance Equation & Procedure

Chlorine Mass Balance

The total chlorine emissions from the Rowley Facility are the sum of emissions from four locations: the cathode stack, the melt reactor stack, the EOG system and from fugitive emissions. This total is determined according to the following mass balance equation and procedure:

$$\text{Total Emissions} = \text{Cathode Stack emissions} + \text{Melt Reactor Stack emissions} + \text{EOG emissions} + \text{Fugitive emissions}$$

Each of the terms of the equation are explained below. In addition, refer to the flow diagram at the end of this appendix.

Cathode Stack Emissions

The Cathode Stack emits the chlorine that is collected from the cathode section of the electrolytic cells. The design of the older electrolytic (IG Farben) type cells allows some of the chlorine that is intended to be collected at the anode for recovery to leak into the cathode section.

In addition to the chlorine from the IG Farben electrolytic cells, the Cathode Stack also receives chlorine from two other non-routine sources:

The Cathode Stack receives the Tail Gas chlorine from the Chlorine Plant when the Chlorine Reduction Burner (CRB) is not operating and,

If the Chlorine Plant is down completely, the Cathode Stack receives all of the flow from the Anode Gas Collection System that normally flows to the Chlorine Plant to be liquefied.

Emissions from the Cathode Stack are determined as follows:

$$B = A - L - T(H/24)$$

$$\text{and } A = P (2 \times 35.453) / 24.305 = P \times 2.92 \quad [\text{from } \text{MgCl}_2 \Rightarrow \text{Mg} + \text{Cl}_2]$$

where B = Cathode Stack emissions in tons per day
A = Anode gas (chlorine) from the electrolytic cells
L = Chlorine liquified by the chlorine plant
T = Tail gas from chlorine plant (gas not liquified)
H = Hours per day the CRB operates
P = Production of Magnesium in tons per day

Melt Reactor Stack Emissions

The emissions from the Melt Reactor are controlled by the Chlorine Reduction Burner (CRB). The following equation describes the method to be used to determine the chlorine emissions from the CRB. Emissions from the CRB are determined as follows:

$$Y = X (1 - \text{CRB efficiency})$$

and $X = A - C - E - F - I - T(1 - H/24)$

$$A = T + L - M_r$$

$$L = R + F + I + M_f$$

where

- Y = Emissions from the CRB
- X = Gas flow to the CRB
- A = Anode gas (chlorine) from the electrolytic cells
- C = Chlorine consumed by chemical reactions in the melt reactor
- E = EOG emissions from the melt reactor
- F = Chlorine used for Ferric Chloride production (FeCl_3)
- I = Chlorine sales
- T = Tail gas from chlorine plant (gas not liquefied)
- H = Hours per day the CRB operates
- L = Chlorine liquefied by the chlorine plant
- M_r = Recycled chlorine from the melt purification system
- M_f = Chlorine feed to the melt purification system ($M_f - M_r$)
- R = Chlorine feed to the melt reactor

from above $X = A - C - E - F - I - T(1 - H/24)$

$$A = T + L - M_r$$

$$L = R + F + I + M_f$$

therefore, $X = T + R + F + I + M_f - M_r - C - E - F - I - T(1 - H/24)$

and since $F - F = 0$; $I - I = 0$ and $M_f - M_r = 0$

then $X = T - T(1 - H/24) + R - C - E$

Also, if the Chlorine Plant is down, then the flow from the melt purification system M_r is sent to CRB. This excess chlorine is called X_c . $X_c = M_r(1 - \text{Hr}_{\text{op_Cl_Plt}}/24)$

therefore, $Y = X (1 - \text{CRB efficiency}) = (T - T(1 - H/24) + X_c + R - C - E) \times (1 - \text{CRB Efficiency})$

Additional Notes:

- ? The factor $T(1 - H/24)$ accounts for the practice of routing the tail gas to the Cathode Stack when the CRB is not operating. Compare with the equation for the cathode stack.
- ? R = Chlorine Input

The chlorine entering the Reactor Building is measured and totalized by two flow meters. These meters are used to check each other; a mass flow meter measures the liquid flow to the chlorine vaporizer whereas a magnetic flow meter measures the vapor flow from the

vaporizer. The totalizer readout (in pounds of chlorine) for the main flow meters is in the Melt Reactor Control Room. These totalizer readings are the basis for the chlorine input.

After the chlorine passes through the two flow meters, it is measured and totalized again at “individual” flowmeters at the points (up to 10 additional meters on a given day) where it enters the chlorine sparging distribution system. If both of the main flow meters fail, the sum of the individual meters can be used as a chlorine input quantity. The totalizer measurements are manually entered into a spreadsheet. This data is transferred into the plant computer database and archived.

? T = Tail Gas

The tail gas mass flow is calculated using the mass of air that enters the chlorine plant with the anode gas and the chlorine concentration, which is based on operators analysis by the potassium/iodate titration method. The mass flow of air entering the plant can be used for the exit flow (tail gas) since the air passes through the plant as an inert whereas the chlorine vapor is liquefied.

? C = Chlorine Consumed

The spray-dried powder (SDP) fed to the Reactor Building is sampled in the powder storage bins prior to being fed to the Melt Reactor cells. The sample is analyzed for MgO, H₂O and iron. The SDP fed to the Melt Reactor cells is weighed and totalized by load cell equipped feeder scales. Load cells also weigh the amount of carbon (coke) fed to the Melt Reactor cells. The hydrogen (chlorine consumer) content of the carbon used is supplied by the vendor and verified by the plant laboratory. Any iron added (as Fe₂O₃) to the Melt Reactor cells is added by bagged increments and recorded. The Reactor Control Board Technician is responsible to record all data and analysis during periods of Reactor Building operation.

The purified molten magnesium chloride produced in the Melt Reactor cells, commonly referred to as RBP (reactor building product), is transported to the electrolytic cells via Glama® Haulers (with integral load cell) and vacuum wagons that are weighed on a platform scale. The weights are tabulated and totaled daily. During periods of Melt Reactor cell operation, the RBP is sampled and analyzed every 1½ hours for MgO, Carbon and Fe. The analysis is used in the calculation of chlorine consumptions. The weight of RBP is used in the material balance calculations to corroborate the Chlorine balance.

1. The Chlorine Consumption is calculated as follows:

- a) $(\text{lbs SDP}) \times (\% \text{ MgO in SDP} - \% \text{ MgO in RBP}) / 100 = \text{lbs "MgO" converted}$
- b) $(\text{lbs SDP}) \times (\% \text{ H}_2\text{O} / 100) = \text{lbs H}_2\text{O converted}$
- c) $((\text{lbs uncalcined coke}) \times (1\% / 100)) + ((\text{lbs charcoal}) \times (5\% / 100)) = \text{lbs hydrogen (H}_2\text{) converted}$
- d) $(\text{lbs SDP}) \times (0.55\% \text{ SO}_4 / 100) = \text{lbs SO}_4 \text{ converted}$
- e) $(\text{lbs SDP}) \times (\% \text{ Fe in} - \% \text{ Fe out}) / 100 = \text{lbs Fe converted}$

2. Calculations of Chlorine consumption by component:

- a) $\text{lbs "MgO"} \times 3.42 = \text{lbs Cl}_2 \text{ consumed}$
- b) $\text{lbs H}_2\text{O} \times 3.92 = \text{lbs Cl}_2 \text{ consumed}$
- c) $\text{lbs H}_2 \times 0.354 = \text{lbs Cl}_2 \text{ consumed}$
- d) $\text{lbs SO}_4 \times 0.737 = \text{lbs Cl}_2 \text{ consumed}$
- e) $\text{lbs Fe} \times 0.64 = \text{lbs Cl}_2 \text{ consumed}$
- f) $\text{lbs Fe}_2\text{O}_3 \times 0.11 = \text{lbs Cl}_2 \text{ consumed}$

Total = Total Cl_2 consumed in lbs

? E = Emergency Off Gas (EOG).

The amount of chlorine emitted by the EOG system is estimated based on the latest stack test data.

<u>Stack test date</u>	<u>Results (lb/hr)</u>
1/12/99	17.21
9/1/93	25.9
10/28/92	45.76

The average, based on the last three stack tests, is 29.62 lb/hr

? CRB Efficiency

The Chlorine Reduction Burner (CRB) destruction efficiency is calculated based on the results from the most recent stack testing. Based on past stack testing results, the typical chlorine destruction efficiency of the CRB is 98 to 99%.

Emergency Off Gas (EOG)

The Emergency Off Gas System is used to capture fugitive emissions of chlorine in the Melt Reactor Building. This controls the occupational exposure of the operators to the chlorine fumes. Per the discussion above, the average chlorine emissions from the last three stack tests are 29.62 lb/hr.

Fugitive Emissions

Fugitive Emissions are the non-point source emissions that are not captured by the EOG system. The fugitive emissions for the facility are estimated at 75.0 tons per year. This is based on the odor threshold of chlorine (0.3-0.5 ppm) and the ventilation flows for the four electrolytic cell buildings and melt reactor buildings. Equipment leaks outside of these buildings are also included in this estimate. This estimate of fugitive emissions is based on engineering judgment using the best available information and as described below:

Example Calculation:

- ? Assume there are 165 operating roof fans in the Electrolytic Buildings and the Melt Reactor Building.
- ? Each roof fan is rated at 20,000 cfm.
- ? The density of chlorine at ambient conditions is 0.1587 lb per ft³
- ? Concentration of chlorine in the air exiting from the roof fans is 0.5 ppm

Fugitive emissions = 165 x (20,000 ft³/min) x (0.1587 lb/ft³) x (60 min/hr) x (8,760 hr/yr) x (0.5 x E-06 Chlorine)

$$= (137,631 \text{ lb/yr})(1 \text{ yr}/12 \text{ months})(1 \text{ ton}/2000 \text{ lbs}) = 5.73 \text{ tons/month}$$

CONCLUSION

Based on the above equations, the following is the mass balance equation:

Total Plant wide Cl₂ emissions = Cathode Stk + M/R stk + E.O.G. + Fugitives

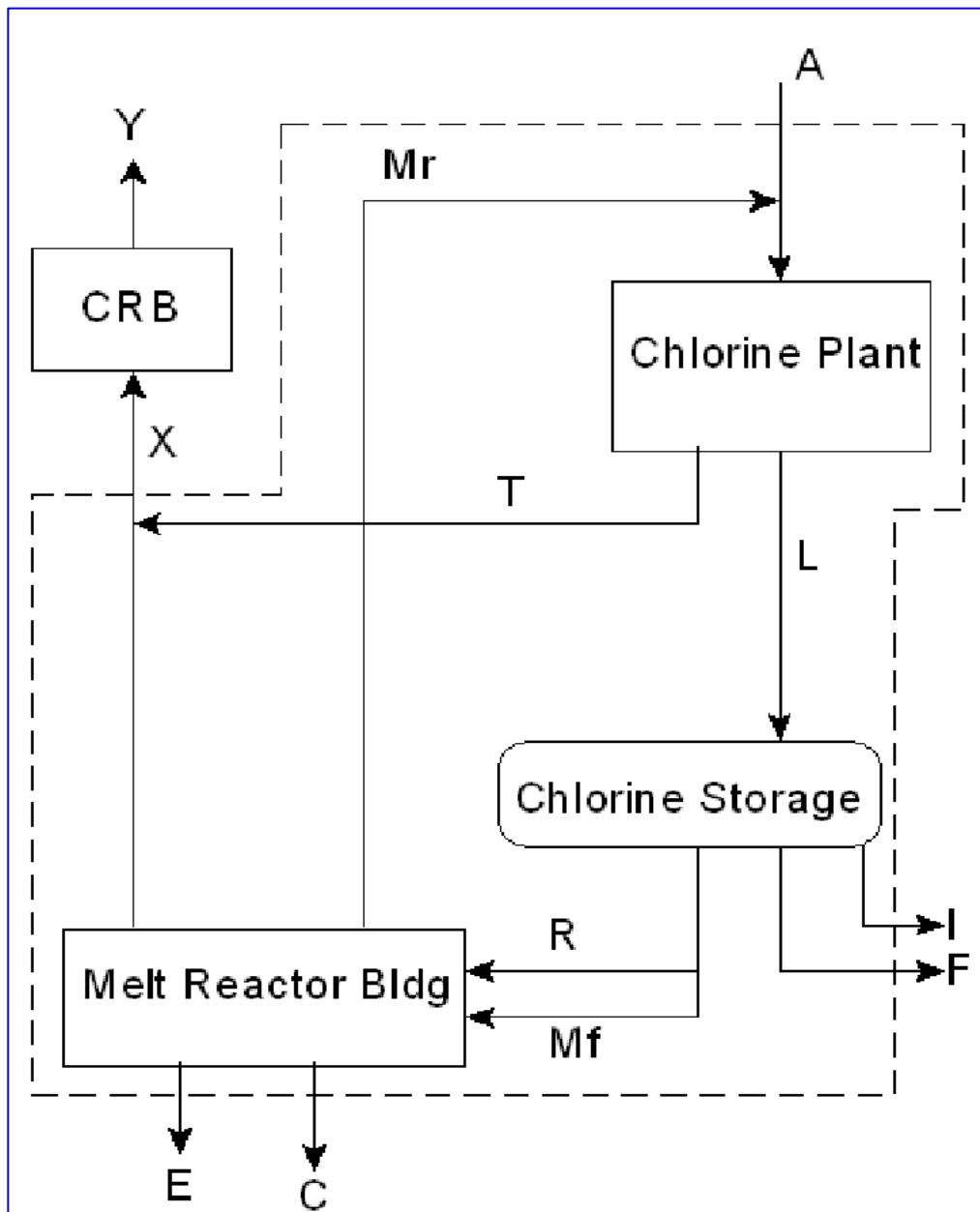
from above discussion, Total Cl₂ = B + Y + EOG + Fugitives

with $B = A - L - T(H/24)$

$$Y = (T - T(1 - H/24) + R + X_c - C - E)(1 - 0.98)$$

$$EOG = 29.62 \text{ lb/hr}$$

$$\text{Fug} = 5.73 \text{ ton/month}$$



A - Anode Gas from Electrolytic Cells
 L - Liquid Chlorine
 I - Inventory Change and Sales
 F - Chlorine to FeCl_3
 R - Chlorine to Melt Reactor
 Mf - Chlorine to Melt Purification System
 Mr - Recycled Chlorine from MPS
 C - Chlorine consumed
 E - Fugitives to EOG
 T - Tail Gas
 X - Flow to CRB
 Y - Emissions from CRB